

THE
AGRICULTURAL LEDGER
1908-09—No. 6

AGENTS.

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INDIAN PENS.

Indian Pens, their history, classification, materials used and methods of manufacture. By I. H. BURAILL.

It is necessary before discussing native pens to enumerate the materials on which they are or were required to write.

INTRODUC-
TORY.
Materials for
writing on.

First of all there is the palm leaf; and the ways of writing on it are two, (i) by incision with a point with or without rubbing in ink afterwards, and (ii) by application of ink to the unbroken surface; secondly, there is paper with its various degrees of finish; and thirdly, the dust-board: the fourth and fifth of writing materials are now out of use; they were birch-bark and heavily sized cotton. The parchment and papyrus of the Mediterranean region do not seem to have been used in India.

Palm-leaf books were the only books of the south until comparatively recent times; birch-bark was the old writing material of the north, heavily sized woven cotton cloth seems to have been used in various places for special purposes: paper came in with the Mughals except into Burma and perhaps into Nepal and the dust-board is the simple calculator of everywhere—a board covered with dust on which the writing or calculation is done, and then soon rubbed out again.

Paper-making is recorded as an invention of the Chinese in perhaps the second century of the Christian era. Chinese prisoners of war in 751 A.D. introduced its use among the Arabs: they made it in Samarkand, which the Arabs had captured in 704 A.D.: and up to the 11th century that city remained famous for its paper. Bagdad from 794 A.D. onwards stood second to Samarkand as a paper-making centre, and kept its industry up to the 14th century. Damascus became famous for its paper in the 10th century. In the 11th century Cairo came to be known for its paper. Paper-

The
Musalmans
spread
paper-
making
through the
Old World.

**INTRODUC-
TORY.**

making, after the Chinese had taught the Arabs how to make it, became a notable Muhammadan industry; in spreading its manufacture they have done a vast work in the world: they introduced it into Spain and had good factories there, better than those of the Christians who followed them: they probably introduced it into Sicily: theirs was the paper introduced into Greece. By their efforts paper-making thus entered Europe and displaced the papyrus and the skin-parchments of the ancients.

It is clearly evident that excluding Nepal and Burma the Musalmans introduced paper-making into India as into Europe.

In Akbar's reign its manufacture was commenced in Kashmir and it was encouraged under his successors there and elsewhere, as well as under the Peshwás and other rulers who came into power as the Mughal Empire broke up. Thus it happened that down the western side of India paper became the chief of writing materials, and then its use spread eastwards. Into Burma its use has undoubtedly come direct from China.

It is important to note now that the art of paper-making long before its introduction into India had advanced far enough for the paper to be sized and made smooth. Wiesner has examined many old Asiatic papers and recorded his observations in an essay entitled *Mikroskopische Untersuchung alter ostturkestanischer und anderer Asiatischer papiere* (Denkschriften Akad. Wien, Mathem.-naturw. Cl. LXXII, pp. 583-632): he found that by the 7th century in Turkestan the use had come in of plaster of Paris together with a gelatine made from lichens or of starch-paste.

We need in India to examine some of our oldest preserved papers in order to ascertain their relation to those made north of the Himalaya.

**CLASSIFICA-
TION OF
PENS.**

The pens used by Indians for writing on these various materials fall into six classes:—

- (1) the iron style,
- (2) the porcupine quill,
- (3) the bamboo pen,
- (4) the palm mid-rib pen,
- (5) the reed and fern pens, and
- (6) the quill.

The Chinese domiciled in Calcutta write with their indigenous brush.

The iron style is used only for writing on (incising) palm leaves. The porcupine quill is only used for making calculations

on a dust-board. These two never have slit points for carrying ink and giving flexibility: the other three classes of pen have slit points after the fashion of the European pen, and are flexible. We thus get two very distinct types of pens and the use of both goes back further than history. The one was the Stylus or *στῦλος* and the other the Arundo or Calamus (*καλαμος*) of the Romans and Greeks. The last is the real precursor of the modern pen.

CLASSIFICA-
TIONS OF
PENS.

The stylus or lekhani of India consists of an iron bodkin often with the upper end weighted by flattening or otherwise, that it may, when it is not actually being pressed down, fall towards the back of the hand of its own accord, raising the point from the surface being incised.

THE IRON
STYLE.

The Indian Museum possesses a long series of these iron styles, the old specimens all from Orissa, but the new ones chiefly a recent and most excellent gift from the Government of Madras. The simplest form might be considered an imitation in iron of the porcupine's quill: it is an iron rod like a stout knitting needle variously sharp at one end or at times at both. Such styles have all come from the contiguous districts of Vizagapatam, Godaveri, Kurnool, Kistna and Nellore. Shorter, but otherwise similar, rods have come from Godaveri. Short and doubly sharp rods have come from Ganjam and Vizagapatam only. The now generally disused style of Burma, of which Mr. Mackenna, after much trouble kindly taken, has only been able to get me a single specimen, is short like these of Ganjam, but not so sharp though more tapering. Styles of a much heavier type, doubly sharp and very thick in the middle, have been received from the opposite coast of India from the contiguous districts of South Kanara and Malabar. Styles of a third type are thick and weighted towards one end—the upper end: they have been in use, I believe, in every district of India south of the Godaveri. The weighting is achieved in simple cases by a mere gradual thickening of the stem towards the upper end: but in more elaborate pens we find it achieved by means of a little abrupt globe placed upon the stem just above the middle: styles of this class are in many cases beautifully ornamented with bidri work. They have been received from the districts of Malabar and South Kanara and from the town of Anjengo which stands cut off from Malabar by a strip of Travancore territory: and further one specimen has come from the opposite coast from Nellore. Similar to the last but brass-topped are styles from the contiguous districts of Kistna and Nellore, and the somewhat remote district of Madura. It is not unnatural that costly pens such as these

**THE IRON
STYLE.**

should travel about the country and so get a dispersal which the ordinary pen does not.

The rest of the types of style consists of a combination of a knife, for cutting the palm leaf, and a point for writing on it. The simplest forms have the upper end of the rod flattened into a blade and sharpened. Out of type 1 above, is thus evolved a style which we may call type four, and out of type 3 type five: types four and five are used in the same parts of India as types one and three respectively, *i.e.*, in the same or contiguous districts: type four is therefore eastern, and type five western and southern. Type four develops in Orissa and Ganjam into a very characteristic form—a style with a broad flat head, one edge of which facing down is for cutting the palm leaf, while towards the other side is an eye-hole for suspending the pen. The Indian Museum possesses a long series of styles of this type. One curious style from Cuddapah has two cutting edges and two eye-holes: others from Anantapur and Kurnool have the two eye-holes but only one cutting edge.

As type six is the clasp-knife, against one side of a wooden or iron handle folds the style, and against the other the knife blade. The wood of the handle is often ebony: the blade sometimes possesses a notch near the apex to enable the thumb to open it; and sometimes a brass stamp for a seal is affixed. This clasp-knife type has been received from almost all of the districts south of Madras. Two kindred types remain to be named, of each of which I have but one specimen. Type seven may be regarded as type four provided at the middle with a wooden sheath which can be folded over the blade or over the style-point, and type eight is an European two-bladed clasp-knife turned into a style by the filing down of one blade. Type seven came from Malabar, and type eight from Salem.

Lastly there is the two-pronged style for describing circles and parallel lines; it is alike at both ends and with a twisted column. Of it specimens have come to me from Salem, South Arcot and Madura.

The style or *Ka-nyit* of Burma is pointed at both ends. Monks use it still in some small degree. It is no more than a simple rod of iron, both ends of which can be used for writing.

Ink is by no means always used with these styles, and even if used is not carried to the palm leaf by the style, but spread over the surface afterwards, whereupon the broken surface takes it up.

It appears probable that the style was the pen used invariably in the extreme south of India before the Portuguese reached the east; and palm leaf-books were there the only books used. With the Portuguese came the use of the quill and the adoption in Tamil of the word 'penna' for an ink-carrying pen.

THE IRON
STYLE.

The porcupine quill needs no manufacture for use. We have in British India four species of porcupine two of which *Hystrix leucura* and *H. bengalensis* have on the flanks between the crest and the tail the straight spines which serve as pens: these spines are few in *H. bengalensis*, and perhaps are very little used. The common porcupine quill of the bazaar of India is the quill of *H. leucura*. The flesh of a porcupine is clean and eaten; but "throw the quills away lest they breed strife," says a Mysore proverb, in allusion to their use for writing.

THE
PORCUPINE
QUILL.

Leaving classes 1 and 2 with which we are not very immediately here concerned we proceed to the true pens. The bamboo pen is not so flexible as the reed pen and not well suited for writing curves: the result is that the bamboo is more used in those parts of India where the characters are stiff than in those where they are curved or is avoided for cursive forms of the stiffer scripts. Thus it happens that children are taught to form their letters with the bamboo and thereafter allowed to learn to write a cursive hand with the reed pen. They will write अ क ख ग with the bamboo, but ॐ ॐ ॐ ॐ with the reed.

THE
BAMBOO
PEN.

Ornamented bamboo pens are more abundantly sold in Western and Southern India than in Eastern India. They are said to be prepared in China entering India by Bombay and Karachi. Whether Chinese or not they certainly pass through Singapore from somewhere beyond. The bamboos used for them are obviously selected for the length and straightness of the internodes between their joints.

I recognise that two species of bamboo furnish them; for of the pens one is grey-green and has been in all cases ornamented with oval spots while the other is chestnut-brown ornamented with cloudy blotches or lines of dots. My specimens of the first have been bought in the bazaars of Madras, Bombay, Nagpur and Delhi; while my specimens of the second have been bought in those of Madras, Hyderabad, Nagpur, Akot (Berár) and Narsingpur. It will be noticed at once that these pens find a fairly wide market. The first named pen seems to be sold with invariably one, sometimes two, nodes on the length, while the second generally has

Imported
Chinese
bamboo
pen.

THE
BAMBOO
PEN.

none. The second has a larger lumen than the first and is generally a little stouter.

I should say that they probably come from different places: the size and the way in which they have been treated suggests this.

I have further received from Nāgpur a single pen dyed red (with eosin apparently) which seems to have come from the same kind of bamboo as the second of those just described. I assume that it is also of Chinese origin.

What bamboos are the sources of these pens I cannot say. There is no literature known to me.

Bamboo pens;
of Indian
origin.

I now pass on to bamboo pens of Indian origin. I shall take them in two groups, (i) the solid pens made from strips of bamboo stems and (ii) the hollow pens, like the imported Chinese pens made of bamboo branches.

Bengal is the chief place where the bamboo pen is employed. Its use is customary with certain classes of people: astrologers (acharyas) for instance use the bamboo-splint pen as a part of the ceremonial of casting horoscopes, and Hindu pandits affect it somewhat. School boys and ordinary country folk use the pen of a bamboo joint commonly called *Kanchi*, or as pronounced in Bengali *Konchi*. The use of both kinds of pens is, indeed, general among the Bengalis. The stems or branches required are cut green and often seasoned by being immersed in water or put into mud, for a fortnight or more. Exactly what process this seasoning implies has not been worked out, but the pen is said to be harder, *i.e.*, to keep its point better from it: and indeed bamboos for other purposes are, seasoned by immersion in water. Bamboos after immersion are said to be less subject to insect attacks than if not immersed, because the water has withdrawn the sap from them; but bamboo pens would hardly be liable to insect attacks and the seasoning in water would seem to have the other use of hardening them.

Beyond the confines of Bengal the use of bamboo-splint pens extends. I have received them from the Nepál hills, Yeotmál in the Central Provinces and South Kánara. In Bengal the strips of bamboo are often shaped carefully to be thickest where the fingers grip, and to taper to the upper end. My samples from Yeotmál and South Kánara show none of this: they are indeed crude. To make the point, the inner part of the bamboo is cut away and the point itself is split as is a quill. The actual writing is thus done with the outer part of the wood which is the hardest. The bamboo

used is probably in most instances from one of the more common species of *Bambusa*.

THE
BAMBOO
PEN.

The bamboo branches which serve in Bengal do not possess long internodes like those of the ornamented imported pens described first, and the pens are of necessity only about five to six inches long. The lumen is small and without being artificially enlarged hardly comes near enough to the point, when cut, to serve as a reservoir for ink. It seems possible that *Bambusa arundinacea* is the chief source of these pens; and, as it grows very generally throughout Bengal, the local demand is locally satisfied.

Bambusa vulgaris is probably also used: it—the Barula bamboo—is said to be used in Chittagong.

Dendrocalamus strictus seems to be put under contribution at Chindwara in the Central Provinces.

Ochlandra Rheedii and *O. travancorica* are reported to me as used in Tinneveli, and the former in Mysore.

What is certainly a species of *Arundinaria* is used for making pens in the Nágá hills. It has reached me under the name of *Jili bans* and is perhaps *Arundinaria Prainii*.

A pen with a large lumen from Multán is, I suspect, from *Dendrocalamus strictus*.

Another *Arundinaria* which furnishes pens about Darjeeling is *A. racemosa*, locally called *Malinga*; but is apparently only one of three bamboos there put under contribution. A second received under the vernacular name of *Khapteri* is a bamboo of the lower hills of Sikkim which I cannot name. *Deo Nigali* is the third, and is also an *Arundinaria*. *Nigala* is said by Gamble to be a name of *A. intermedia*, *Munro*; but *Deo Nigali* is an *Arundinaria* of greater elevation. I have made an attempt to collect *Deo Nigali* in the Darjeeling District but without success, though I looked for it all along the Singbela ridge up to 12,000 feet, and elsewhere at lower elevations.

I found to be sold in Khátmánda a very hard little bamboo pen with a small lumen: its origin I cannot determine.

We leave bamboo pens and proceed to palm mid-rib pens.

PALM MID-
RIB PENS.

These are inferior to the bamboo in serviceableness; they are made from the mid-rib of the sago palm (*Caryota urens*) in Southern India. I have received specimens from Anantápur and South Kánara in Madras and from Poona in Bombay. It is reported to me by Mr. G. A. Gammie that they are used in the Haveri Taluka of the Dhárwár District. Bagani galaga or simply Bagani is the name

**PALM MID-
RIB PEN.**

given to them about Anantápur, Dhárwár. From some of the pens the epidermis has been scraped; on others it has been left. The point is made from the outer tissues on the ventral—rounded—side of the mid-rib.

REED PEN.

Of the reeds many species are used. In my collection I have reed-pens derived from:—

	{	Saccharum fuscum.
	{	Phragmites Karka.
Hollow.	{	Phragmites communis.
	{	Arundo Donax.
	{	Triraphis madagascariensis.
	{	Saccharum arundinaceum.
	{	Saccharum spontaneum.
Solid.	{	Sorghum halepense.
	{	Sorghum vulgare.
	{	Pennisetum typhoideum.

**Saccharum
fuscum.**

Out of all the reeds **Saccharum fuscum**, noteworthy in its genus for its hollow stem, is apparently that which makes the best of reed-pens. The grass is reported to grow at Disful in Persia plentifully and the pens are thence imported into India by Bombay. It also grows in wet places in Eastern Bengal, and receives some small degree of cultivation; that is to say, it may be purposely planted and protected until it has grown up, when the stem is cut, with the leaves and the leaf-sheaths stripped off; and it is sold in lengths of several feet or cut into lengths of one or two internodes. It grows also, and is used for pen-making on the banks of the Godávari and Kistna in the Madras Presidency: and to some extent it is collected locally in the Circárs. It is reported in various places that the Nepál Terái furnishes some of the pens, but at any rate it does not furnish many. One may know the reed by its deep brown colour, which, where the sun has not touched it, shades off to a dull straw colour. To ornament these pens before sale is unusual, but is sometimes practised by twining threads round them in spirals and then scorching them.

Such pens have been received only from the Central Provinces and Saháranpur.

Rarely, nature by means of some climber makes similar marks up the growing reed, the creeper preventing the sun from causing the stems to go brown.

Pens of this reed are extensively used all over the Bengals, through literate Assam, fairly generally through the peninsula of

India to the very south and westwards through the United Provinces to the Punjáb. They also reach Burma. Arabic and Persian characters are generally written with them; and Musalman immigrants have carried their use to the very south of India into a country where the Hindu population uses no such pen. They are also used for writing Nágari characters, particularly as stated above the more cursive forms.

PALM MID-
RIB PEN.

The reed is extensively named among the Bengalis Khag or Khagra, rarely Khagri, sometimes it is called Sar or Shar. A pen of Sar becomes Sar Katti or Sharkatti, or if the word 'Khagra' is used, Khagra Kalam.

Among the Hindi and Urdu speaking people we get the words Wasti, Owasti and Oasti with less common variants around, e.g., Asthi (Monghyr), Osthir (Murshidábád), Owastir (Bánkurá), Ozastri (Midnapur), Wastir (Ghátál and Delhi, etc.). The use of Wasti extends into the Assam hills.

In Bombay, the Punjáb and the Central Provinces the general name is Kilak, a Persian word for a pen. In Patná and Muzaffarpur the name is also used in the form Killik; and the Chutia Nágpur, it is corrupted to Killi.

The word Wasti has been explained to me by a correspondent as derived from Wasit, a town in Persia. This name and the use of the Persian word Kilak, and in the Punjáb of the name Irani Kalam point to the origin of the pen and also suggest that its use in India is not ancient. It is said to be imported through Singapur also.

I now give two reports kindly obtained for me from Persia. In both reports one origin for the pens is given, viz., Dizful. The connection of the pen with the town of Wasit has not been cleared up: it will be noticed that Major Ducat says that my supposition that Wasit is Gwasht is incorrect: there is, he says, no pen industry at Gwasht.

Note on the Cultivation and Produce of the Pen Reed (Qalam) in the Dizful District, by Captain D. L. R. Lorimer, His Majesty's Consul at Ahwaz, dated 14th March 1909.

The site of cultivation is the low lying ground along the course of the Diz river extending for some miles from a point three or four miles below the town of Dizful. The soil must consist solely of mud without any admixture of sand or gravel.

Mode of
cultivation.

Mode of cultivation.

The ground is prepared by a rough ploughing or hoeing and the preparation of water channels at short intervals. The channels are about $1\frac{1}{2}$ deep and must always contain water.

REED PEN.

When the ground has been thus prepared roots (rishā) of the reed are then planted out, and are left to grow and mature for three years. After these three years they are transplanted to similarly prepared ground. Thereafter they begin to yield reeds of commercial value as follows:—

In the 1st year *nil*.

In the 2nd year reeds suitable only for the Persian market.

In the 3rd year reeds suitable for the Persian market and a small quantity for export.

In the 4th year reeds suitable for Indian market.

In the 5th year ditto.

In the 6th year ditto.

In the 7th year reeds suitable for Indian market, and other foreign markets.

The produce of the 7th year is better in quality than that of any other year. The full life of the reed is said to be 16 years.

Preparation for the market.

When ready for cutting the reeds are stripped of all green leaves and sheaths. Their colour is then "white," which changes to the characteristic chocolate colour by exposure.

When this change has taken place they are cut and placed in store rooms from which fresh air is carefully excluded. Here they are allowed to dry and "sweat" for 40 days, after which they are taken out, graded, and disposed of.

Commercial differentiations of the reed.

The following types or qualities, all being obtained from the same plant, are recognised:—

1st Quality.—*Qalam-i-Banyani*, especially in demand in the Indian market.

These are thick well-developed reeds, well consolidated, and with long internodes (*qab*).

The local average price is Krans 4 per *dastah* of 100 (entire) reeds.

2nd Quality.—*Qalam-i-Ablaq*, a reed of inferior quality to the *Banyani*. It is described as more "sust," i.e., slack, or less well consolidated. It is both exported and used locally, but is not in favour with Persians.

Average local price Krans 2 per *dastah*.

3rd Quality and 4th Quality.—*Qalam-i-Amiri* and *Qalam-i-Mirzai*. These are thinner than the preceding types,

but are well formed and are those in general demand in Persia where they are preferred to others. The two kinds vary apparently only in dimensions, the "Amiri" being slightly larger than the "Mirzai."

Prices vary much, but the average price is given as 1 to 1½ Krans per *dasiah*.

These kinds are referred to from a commercial point of view as "Bab-i-Iran," the Banyani being "Bab-i-Hind."

The reeds vary in length from about six or seven feet to about 4 feet, in the case of some of the "Mirzai."

It is denied that in this district the reeds are cut before reaching maturity.

The value of reeds produced in the Dizful district is said to be liable to extreme fluctuation, the annual value varying between 5,000 and 100,000 Krans (the ordinary range of the value of the Kran being from 340 to 380 Krans per Rs. 100 £6 13s. 4d.).

Within Persia, Dizful furnishes reeds to Hamadan, Ispahan, Shiraz, and probably Bushire.

Export is principally to India and *via* Bombay to Egypt, Constantinople and China.

The pen reed is said to be also found at Badrai on the Turko-Pusht-i-Kuh Frontier, and at Qal'a Tul in the Bakhtiari country, but the quality is inferior.

The flower of the reed is said to be useless, and propagation is wholly by division and planting out of the root.

Specimens of the flower will be obtained if possible. Specimens of the "Ablaq," "Amiri" and "Mirzai" types of reeds are forwarded with this report. Owing to the disturbed state of the country all commercial intercourse with Dizful has for some time been cut off, and specimens of the "Banyani" reeds are not at the moment obtainable here.

No. 15—109, dated the 15th April 1909.

From—MAJOR C. T. DECAT, His Britannic Majesty's Consul, Keenan.

To—MAJOR P. Z. COX, C.I.E., Political Resident in the Persian Gulf.

With reference to your endorsement No. 23/535, dated 28th February 1909, enclosing copy of Government of India's letter No. 244-E.A., of the 16th February 1909, with its enclosures, I have the honour to inform you that my information is that the chief source of "Kilk or Irani Qalam" which furnishes the native pens is a dense jungle of reeds in the vicinity of Dizful between the

into the market for pen-making, though used extensively for fence-making, and as a binder in making mud walls. Delhi is one of the very few places where the reeds appear in the bazaar cut for pens: they are cut in double lengths enough for two pens. For pen-making only the very best grown of the reeds of this species are suitable.

REED PEN.

Bākarganj, Jessore, Farīdpur and neighbouring districts would seem to be those where the pen is much used: school boys learning to write particularly use it. Up the Brahmaputra Valley and the Ganges Valley, the use is not infrequent, the pens being sought just as required. Pilibhīt, Moradābād and Bareilly supply Delhi with the reeds that are there sold. Reeds are locally cut just as pens are wanted in Southern India.

Saccharum spontaneum does not make such a clean looking pen as either the last or the next: for its stem is a dirty straw colour often blotched with red.

It is solid in most cases: and when hollow the lumen is very small and irregular.

A glance at our Floras will show how variable this grass is in stature: thus Hooker (*Flora of British India*, VII., p. 119) and Prain (*Bengal Plants*, p. 1188) say that it varies between 5–20 feet high. No wonder then that the pens from it vary in size. I have specimens in diameter ¼ in. (10 millimetres) and others only ¼ in. (4 millimetres).

The very thin specimens come from Anantāpur and South Kānara in the Madras Presidency. The little stems are harder than the larger ones and perhaps specially chosen, just as the little hard stems of *S. fuscum* are preferred in Persia.

Like *S. fuscum* this reed is very commonly called *Khagra*, *Khagar*, *Khagara* or *Khagari* in Bengal. The use of *Khagari* extends to Sibsāgar. Towards Western Bengal the name varies to *Karia* (Rāmpur Beaulah), *Kharai* (Rājmeāl), *Khari* (Monghyr), and *Keshi* (Pakur), and *Keshia* (Bardwān). In North-Western Bengal the name *Kanda* is applied to it as to *Saccharum arundinaceum* and *Ikri* or *Inkri* is not uncommonly used in Tirhut.

Darbha, *Darbe* and *Dherbai* are the names used in Bellary, Mysore and the country southwards and also in Nellore and Anantāpur eastwards. A few other local names have reached me attached to pens, *Pakri* is one coming from Vishnupur in the Bankura District, *Bon* is another used in Rājshāhī: *Garhan* or *Garahan* one from Muzaffarpur: *Dhour* and *Salendi* are two other

REED PEN. names used in the Bahraich District where reeds are cut and graded by the weavers who require them.

From Madras, pens of *Saccharum spontaneum* have reached me in greater numbers than those of any other *Saccharum*. The immigrant Márwáris, who are those who use such pens, seem to find it serviceable for writing in Nágari characters.

*Saccharum
arundinaceum.*

Saccharum arundinaceum is used for pens locally, chiefly in the Ganges Valley, the country of the Munj grass (*Saccharum arundinaceum*, var. *ciliare*). It is called *Sar*, *Shar* or *Shari*, and also, like *Saccharum spontaneum*, *Kauda*. At Gayá the word *Sar* is changed into *Sarka* or *Sirki*. It is also used a little in the peninsula of India as I have received specimens from Parlakimedi in the Ganjam District, Biláspur, Drúg and Malabar. The Parlakimedi specimens are labelled *Jayakana*, the Biláspur specimens *Kandsar* and the Malabar specimens *Chengamai*. I have received it under the name of *Kana* from Amritsar and Múltán.

Saccharum arundinaceum is apparently used in Cuddapah for pens. I have received thence a bundle of stems, the thickest 8 in. (2 cms.) thick, under the name of *Veri cheruku*.

The stem of this grass is very pale in colour: it is solid and the central tissue soft and rather absorbent. It cannot be said to make good pens.

*Sorghum
halapense.*

Sorghum halapense is almost the chief source of country pens on the western part of the plateau of the peninsula of India. It gives solid pens very similar to those given by *Saccharum arundinaceum*, var. *ciliare*. As a rule they are darker in colour and slightly heavier. As far as I know they are never sold in long lengths.

The grass is very well known as *Baru* or *Bharu*, and sometimes distinguished as white *Baru* or *Tandh baru* or in Western Bengal as *Bharuhi*. From Dumká it has reached me under the wrong name of *Kharai*. Arrah, Gayá, Dumká, Ránci and Palámau are the most eastern places from which this pen has come to me.

To get good pens it is necessary to grow them purposely. The grass begins to grow vigorously in June and flowers in October. Just before it would flower the stems must be topped and left to grow again. Four months later, when a second flowering would occur, they may be cut for pens. Pens are thus locally prepared in most parts of the Central Provinces; but there is a very little trade in them. They are the pens there chiefly worshipped at the feast of Sri Panchámi.

Sorghum vulgare, the great millet, is occasionally put under contribution for furnishing pens. Pens from it have been received from the Central Provinces, Bombay and Madras only. A man only cuts a pen from this plant when the more regular pen-furnishing grasses are not to hand.

REED PEN.

Sorghum vulgare.

Pennisetum typhoideum, the Bulrush millet or Bajra, makes very inferior pens and is only rarely used. I have received it from Patná and Bahramghát in the United Provinces. Like **Sorghum** it is but used when other pen-furnishing grasses are not to hand.

Pennisetum typhoideum.

Phragmites communis and **P. Karka** furnish very brittle light hollow pens which are pale straw coloured or greenish. The second is the more important source.

Phragmites communis and P. Karka.

Often the pens from this reed are of considerable diameter: I have them up to 7/8 in. (20 mms.) across; but it is evident that they are preferred of smaller more ordinary dimensions.

They are very largely used in the Madras Presidency where the reed is called *Kakire dara* or *Vel Kantattai* or *Koraka Kantattai* or at Anantápur *Burrahaddi*. I have further received a few specimens from Manipur and Cachar from Western Bengal, from Multán in the Punjab, from Bombay, from Hinganghát in the Central Provinces, and one from Lower Bengal and one from Burma.

The reed is known as *Nal* or *Nari* in Northern India: it came to me as *Endoe* from Manipur, and as *Nachal* from Muzaffarpur.

One of my pens from this reed has been cut from a particularly large specimen and is only a splint from one side.

Reeds which I found to be used at Káttáclundu for pens I believe to be derived from **Phragmites communis**. They were sold under the name of *Sar*.

Arundo Donax furnishes a pen very like that from **Phragmites**, but is used much less frequently. The pen is a little stronger than that of **Phragmites**. I have received specimens from Nowgong in Assam, Yeotmál in the Central Provinces and Madras and Gudur in Southern India. The reed bears the same name in Madras as the last. In Nowgong it is called *Ekra*.

Arundo Donax.

Triraphis madagascariensis (*Heyraudia madagascariensis*) is believed to be the source of a pen received from Dacca. It is a thin hard pen and is named *Kassi* and *Kasha*.

Hard fern petioles make very fair pens and have probably long been used in North-Eastern India for the purpose, first from indigenous supplies and later by import. They are used in the West of India in the finest writing "Khush Khatt" because they keep such a good point.

Fern p

REED PEN.*Gleichenia linearis.*

The numbers of fern petioles imported into Calcutta must be considerable; they come from Penang and Singapur; and possibly a large part of them reach Singapur from Java. They are the bright brown very hard stem-like leaf-stalks with a loose core and flattened on one side which one sees so plentifully in every bazaar of Bengal. The flattened side is the upper side of the fern leaf-stalk, and the loose core the vascular bundles which in drying and with the help of decomposition have become freed from the hard outer strengthening tissue. The fern which supplies the imported pens is *Gleichenia linearis*. To Mr. J. B. Carruthers of the Department of Agriculture, Federated Malay States, I owe the specimens whereby I have identified it.

The collections of pens that I have made and that have been made for me in the course of this enquiry include more examples of pen from *Gleichenia* than from any other plant. Up and down Lower Bengal and in Orissa the name *Kalmi Kalam* or simply *Kalmi* is commonly applied to it: in Upper Bengal about Patná, Gayá, Arrah, etc., it is called *Latar* and this word north of the Ganges in Tirhut becomes *Lati* or sometimes *Kalam Lati*. In Eastern Bengal it is *Lata* or *Lat* or *Latakati*. In Assam the local vernacular of the fern, which grows there freely enough, is applied to the pen and we have the name *Dhekia* or *Dheki*; but from Goalpara and Mymensingh the name *Palang* or *Palai* comes. In Chutia Nagpur apparently various names are applied to the pen: *Dalchini* is used at Hazaribagh; *Darchini Katal* at Ranchi, *Santhi* among the Santals at Dumka and in Singhbhum it is reported to be variously called *Sonti*, *Umesti* and *Killich*. The second of these three names, which is connected with Wasti, and the third do not really belong to the fern; but belong to the Persian reed-pen from *Saccharum fuscum*. Through the Central Provinces the fern is called *Bed Muska* or *Mushk beda*.

In Madras it is called *Koruka thattai* in Tamil, or at times *Java Kacan*.

This imported fern pen gets a good deal broken up on the voyage, so that from Delhi it is reported that 25 per cent. of the pieces received are useless. However it obviously pays to import it, the indigenous fern pens which might compete with it being so inferior.

Gleichenia linearis is a very widespread tropical fern which ascends the mountains of Southern India to 6,000 feet and the Himalaya to 5,000 feet. *Dhenki* or *Dhekia* as already stated is its Assamese name, and has largely passed in common parlance

to the imported pen; *Palai* is its Nágá name, *Kameng* its Manipuri name. It is probably the fern called *Chyakun*, i.e., iron fern, by the Bhutias and is called *Poomol Boisong*: by the Lepchas it is called *Hari onea*, i.e., black fern. Pens are made of it in the Darjeeling District.

In many parts of Assam school boys make for themselves pens of the wild *Dhekia*, and so also is done in Manipur, but to the best of my knowledge the fern does not grow there large enough to be fully serviceable;—hence the way in which imported stems hold the market against them in the Bengal plains. The Bengalis do not generally know the origin of the fern-pens that they use; they fancy that they are locally produced by some unknown process from the runners of *Ipomœa aquatica*, a soft water plant commonly eaten as a vegetable under the name of Kalmi ság. The dealers in them in Calcutta are men in a very small way of business.

Nephrodium boryanum furnishes pens at Kohima in the Nágá hills and is called *Dhekia* like the last. It is a large fern.

*Nephrodium
boryanum.*

I have one small intensely hard fern-pen from Madura imported from Singapur, the source of which I cannot name.

We now come to the quills; they are chiefly peacocks' feathers—the black and the brown wing feathers, and sometimes the tail feathers. The brown wing feathers seem to be commonest, and almost the only ones used in Northern India. My samples of the black wing feathers come from Madura and of the tail feathers from Bellary.

QUILLS.

White goose quills from the wing are used in Bengal and Assam alongside the brown peacock wing quills. They do not come up in quality to the best picked European goose quills, but are apparently imported. They are weaker than the peacock wing quills.

Goose quills.

Now quills used in Europe should be carefully picked: they are not really good if taken from fatted killed geese, but only if taken from living geese in good condition.

Ten wing feathers are plucked from each goose and they fall into four grades:—

- best, the second and third of the left wing,
- second best, the first, fourth and fifth of the left wing.
- good, the second and third of the right wing,
- worst, the first, fourth and fifth of the right wing.

The second and third feathers are the strongest. The feathers of the right wing are not so good as the feathers of the left wing

QUILL. owing to the fact that in the hand of the writer they curve towards his face and may be inconvenient. After plucking they are heated in sand and undergo while hot a scraping to clean them. The heating if well done leaves them very elastic.

My examples of goose quills from Indian bazaars are all left wing feathers: all have been cut short just above the middle, and all have been scraped. They are all smaller than the best selected European quills and less firm.

Peacock quills. My peacock feather quills are by no means all left wing feathers and I believe that they are all cast feathers, picked up in the jungle about the moulting season which is September in Northern India, and in Southern India October to December.

A pea-fowl usually possesses in each wing 9—11 stout black feathers and 7—9 brown.

Calcutta serves as a distributing centre for Bengal, probably receiving its supply from several sources.

THE STEEL NIB. Nearly seventy years ago the modern steel pen was evolved in Britain and began to displace the quill. In 1818 an inventor named Joseph Bramah devised and patented a machine for cutting up the barrel of a feather into three or four pieces, which were then pointed as quills are pointed and fixed to a handle. A few years before this a Mr. Wise had folded a tube of steel into a similar form the slit of the pen being formed from the free edges. These nibs were the forerunners of the common nib of to-day, but when about 1840 the industry arose a very great deal of work had still to be done before flexibility was attained. However improvements were rapidly made and the industry which began in Britain has remained very largely British.

Attempts have been made in Bengal at nib-making but no perfection attained yet. Barisál produced these nibs: they were very inferior, crookedly cut, cross-pointed articles. If they are to hold any position their manufacture must be greatly improved. The steel sheets must have been imported in the first instance and no more than the cutting done in India.

THE CHINESE BRUSH. Last of all remains to be mentioned the Chinese brush. Chinamen in India use it always. They import it from China, and sell it in the Turret bazaar, Calcutta, and elsewhere. The best brushes are said to be made of marten hair, inferior brushes of the hair of other animals. The hairs are well packed into a handle of bamboo, or of some *Arundo* or of a similar grass: they are glued together into a cone so that a point is produced with only a very short length of hair free at the tip. Over the cone when not in use fits a thimble

made of a bit of perhaps **Phragmites Karka** or of bamboo. With these brushes the Chinese can make the finest lines.

THE
CHINESE
BRUSH.
SUMMARY

I started this ledger with a note on the material written on: and then proceeded to enumerate all the pens used in India ending with the Chinese brush. The hardness and smoothness of the surface of the first is correlated to the hardness of the pen or brush used. The Chinaman writes with his flexible brush with ease on the roughest of surfaces: the unyielding porcupine quill is only useful for the hard dust-board: and the iron style for the palm leaf. It seems that the Portuguese introduced the use of the bird-quill into Southern India: and they must have brought paper into the country at the same time. The Portuguese of course well knew the art of paper-making, but there is known to me no evidence showing that they introduced paper-making. It would be most interesting to know on what writing material the Portuguese kept their first records in India.

It seems probable that the Persian pen from **Saccharum fuscum** came into wide use with the Mughals and their spread of paper-making. The fern pen perhaps spread in use in India later and from the east side. Bamboo pens have probably been long used; but the importation of bamboo pens from China is of recent origin.

The customs in pens are changing rapidly. Already the Persian pen is only of importance as a religious emblem among a large part of the literate of Bengal: and in most parts of India it is rapidly going out of use. The quill has recently spread in use but may be expected to give place to the steel pen. Burma, the part of the Indian Empire most quick to change, has almost given up pens other than the steel nib. There all men are literate. If India as a whole becomes literate, these native pens as pens will disappear.

A list of all the plants used for making pens.

1. **Arundinaria Prainii**, Gamble, p. 117.
2. " **racemosa**, Munro, p. 117.
3. " **sp.** p. 117.
4. **Arundo Donax**, Linn., p. 118, 125.
5. **Bambusa arundinacea**, Willd., p. 117.
6. " **vulgaris**, Schrad., p. 117.
7. **Caryota urens**, Linn., p. 117.
8. **Dendrocalamus strictus**, Nees., p. 117.
9. **Cleichenia linearis**, Bedd., p. 126.

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10. **Nephrodium boryanum**, *Hook. et Baker*, p. 127.
Neyrandia madagascariensis, *Hook. f.* see *Triraphis*.
 11. **Ochlandra Rheedii**, *Benth.*, p. 117.
 12. „ **travancorica**, *Benth.*, p. 117.
 13. **Pennisetum typhoideum**, *Rich.*, p. 118, 125.
 14. **Pragmites communis**, *Trin.*, p. 118, 125.
 15. „ **Karka**, *Trin.*, p. 118, 125.
 16. **Saccharum arundinaceum**, *Retz.*, p. 118, 123.
 17. „ **fuscum**, *Roxb.*, p. 118, 122, 126.
 18. „ **spontaneum**, *Linn.*, p. 118, 122.
 19. **Sorghum halepense**, *Wall.*, p. 118, 124.
 20. „ **vulgare**, *Pers.*, p. 118, 125.
 21. **Triraphis madagascariensis**, *R. Br.*, p. 118, 125.
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Other organic materials.

- Quills of the porcupine, **Hystrix bengalensis**, *Blyth*, p. 115.
 „ „ „ **leucura**, *Sykes*, p. 115.
 „ the peacock, **Pavo cristatus**, *Linn.*, p. 127.
 „ the goose, **Anser sp.** p. 127.

